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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,269	01/04/2006	Tae-Kyung Yoo	718936.11	6413

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EXAMINER
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WEISS, HOWARD

ART UNIT	PAPER NUMBER
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2814

NOTIFICATION DATE	DELIVERY MODE
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11/07/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

pto-sl@huschblackwell.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/563,269	<b>Applicant(s)</b> YOO ET AL.	
	<b>Examiner</b> Howard Weiss	<b>Art Unit</b> 2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 August 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9-17 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 9-17 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

Attorney's Docket Number: 718936.11

Filing Date: 1/4/2006

Continuing Data: 371 of PCT/KR04/01770

Claimed Foreign Priority Date: 718/2003, 10/10/2003 (KRX)

Applicant(s): Yoo et al. (Park, Kim)

Examiner: Howard Weiss

***Election/Restrictions***

1. The restriction requirement, as set forth in the Office action mailed on 7/10/2008, has been reconsidered and Claims 9 to 17 are no longer withdrawn from consideration. In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 9 to 17 are rejected under 35 U.S.C. § 103(a) as obvious over Kuo et al. (U.S. Patent No. 6,515,306), Ye et al. (U.S. Patent No. 6,479,313) and Hashimoto (U.S. Patent No. 6,508,879).

Kuo et al. show all aspects of the instant invention (e.g. Figure 3) including:

- forming a plurality of nitride layers having an active layer **140** for generating light and a p-type GaN layer **132** doped with Mg
- forming an electrode layer **160** made of ITO
- forming an n-type nitride layer **150** in contact with the electrode layer

Kuo et al. do not explicitly show forming said p-type GaN layer using ammonia and a hydrazine-based material with CH<sub>3</sub> or NH<sub>2</sub> as a nitrogen precursor and without a subsequent annealing process and the particular flow rates claimed. Ye et al. teach (e.g. Column 5 Lines 14 to 23) to form a p-type GaN layer using ammonia as a nitrogen precursor and without a subsequent annealing process and N<sub>2</sub> and H<sub>2</sub> as carrier gases to form low-resistance p-type semiconductor layers (Column 2 Lines 8 to 13). It would have been obvious to a person of ordinary skill in the art at the time of invention to form a p-type GaN layer using ammonia as a nitrogen precursor and without a subsequent annealing process as taught by Ye et al. in the process of Kuo et al. to form low-resistance p-type semiconductor layers.

Hashimoto teaches (e.g. Column 5 Line 59 to Column 6 Line 51) to use a hydrazine-based material with CH<sub>3</sub> or NH<sub>2</sub> and ammonia as a nitrogen precursor to improve the crystallinity of the semiconductor layers (Column 2 Lines 12 to 19). It would have

been obvious to a person of ordinary skill in the art at the time of invention to use a hydrazine-based material with ammonia as a nitrogen precursor as taught by Hashimoto in the process of Kuo et al. to improve the crystallinity of the semiconductor layers.

Since the Applicant has not established the criticality of the flow rates stated and since these flow rates are in common use in similar devices in the art, it would have been obvious to one of ordinary skill in the art to use these values in the process of Kuo et al., Ye et al. and Hashimoto Where patentability is said to be based upon particular chosen parameters or upon another variable recited in a claim, the applicant must show that the chosen parameters are critical. *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). Additionally, all the claimed elements were known in the prior art and one skilled in the art could have combined the elements as claimed by known methods with no change in their respective functions, and the combination would have yielded predictable results to one of ordinary skill in the art at the time of invention. See Supreme Court Decision in *KSR International Co. v. Teleflex Inc.*, 550 U.S. --, 82 USPQ2d 1385 (2007).

### ***Response to Arguments***

4. Applicant's arguments with respect to Claims 9 to 17 have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

5. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

6. Papers related to this application may be submitted directly to Art Unit 2814 by facsimile transmission. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (15 November 1989). The Art Unit 2814 Fax Center number is **(571) 273-8300**. The Art Unit 2814 Fax Center is to be used only for papers related to Art Unit 2814 applications.
7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Weiss at **(571) 272-1720** and between the hours of 7:00 AM to 3:00 PM (Eastern Standard Time) Monday through Friday or by e-mail via [Howard.Weiss@uspto.gov](mailto:Howard.Weiss@uspto.gov). If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy, can be reached on **(571) 272-1705**.
8. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at **866-217-9197** (toll-free).

9. The following list is the Examiner's field of search for the present Office Action:

Field of Search	Date
U.S. Class / Subclass(es): 257/ E33.028	thru 11/4/2008
Other Documentation: none	
Electronic Database(s): EAST	thru 11/4/2008

HW/hw  
5 November 2008

/Howard Weiss/  
Primary Examiner  
Art Unit 2814